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A PREDICTABLE FRAMEWORK FOR CO₂ UTILISATION IN THE CEMENT SECTOR IS URGENTLY NEEDED

By proposing a phase-out date of 2035 for the use of industrial CO₂ in synthetic fuels, the Commission draft Delegated Act on recycled carbon fuels risks derailing ongoing carbon use projects in the EU cement industry. CEMBUREAU urgently asks policymakers to:

- ***Provide a specific derogation allowing for the continued use of CO₂ from unavoidable process emissions from industrial installations for the production of recycled carbon fuels; or***
- ***Alternatively, ensure that the industrial use of CO₂ for the production of recycled carbon fuels can be used until 2050 – or beyond in case the development of Direct Air Capture and the capture of biogenic emissions does not allow to reach the target amount of captured CO₂ to reach the Paris climate goals in 2050.***
- ***Besides the Delegated Act, CEMBUREAU believes that the Commission should engage in a thorough reflection on:***
 - (i) the demand for CO₂ in the EU economy between 2030 and 2050, as well as the potential and timeline for the development of Direct Air Capture and biogenic emissions' absorption between 2030 and 2050, with an assessment of energy costs for such developments.***
 - (ii) the types of carbon use that can either discharge the surrendering of allowances under the EU ETS Directive or give rise to carbon removal certificates under the upcoming regulatory framework for carbon removals.***
 - (iii) an EU framework for industrial CO₂ utilisation in the EU, with clear methodologies and accounting rules.***

CCUS is a key technology for the cement sector, and significant investments are being delivered

- The manufacturing of clinker, the main constituent of cement, takes place in a rotary kiln where raw materials are heated up and CO₂ is separated from limestone through a chemical process referred to as calcination. Calcination causes 60%-65% of cement manufacturing's CO₂ emissions (process emissions) with the remainder of the emissions coming from the fuels heating the kiln (combustion emissions).
- Process emissions are unavoidable emissions and that is the reason why 42% of the CO₂ emission reduction efforts towards carbon neutrality in the cement industry in 2050 need to be achieved through carbon capture and storage/use (please see CEMBUREAU [carbon neutrality roadmap](#)).

- A large number of CCUS pilot and demonstration projects [have been launched](#) by cement companies across Europe, with the first of them becoming operational as early as 2024. Recent ETS Innovation Fund calls also [supported](#) a great variety of CCUS projects, allowing the EU cement industry to show global leadership on this technology¹.
- The European Commission's modelling of scenarios consistent with 1.5°C scenario indicates that between 280 and 600 Mt of annual CO₂ CCUS² will be required within the EU by 2050.

CO₂ utilisation is indispensable for the cement sector, and many projects currently aim at producing synthetic fuels for the transport sector

- A large number of CCUS projects in the sector seek to permanently store CO₂ ('CCS'). However, re-using CO₂ into fuels and products and ('CCU') will also be critical for the sector.
- Indeed, many of the 200 cement kilns on the European territory are landlocked, with no easily available CO₂ storage-site within reach. Faced with unavoidable CO₂ emissions, it is crucial that these plants have the possibility to re-use the CO₂ they capture.
- Furthermore, forecasts show that CO₂ captured from all geological storage sites currently in early development will lead to only 30-40 million tonnes of annual capacity by 2030. A massive scaling up of CCS will be required between 2030 and 2050 and will require infrastructure, financing and a proper regulatory framework for access to essential infrastructure facilities under reasonable commercial conditions.
- Apart from storage in geological sites, the cement industry is exploring other forms of permanent storage, such as mineralisation – however, current research shows that the volumes of CO₂ that can be stored through mineralisation are small. As a result, other forms of industrial CO₂ use will be needed to achieve the CO₂ captured target set out above such as use in chemicals, algae, food and drinks, building materials and fuels.
- As highlighted by the International Energy Agency's (IEA) Sustainable Development Scenario, CO₂ use for synthetic fuel production will indeed be scaled up in the period up to 2030³. In the EU cement sector, a large number of projects re-using CO₂ to produce synthetic fuels are under development, some of which have been shortlisted under recent Innovation Fund calls.
- These projects involve significant investments and have been developed in contractual partnerships and consortium agreements with other industrial partners – project investment costs vary according to the type of use but can reach up to EUR 1.5 bn, whilst the development of a viable business case for carbon use requires a pay-back period of 30-35 years. It is not possible to 'switch' from one project type (e.g. CCU for synthetic fuels) to another (e.g. CCS).
- A 2035 phase-out date for CO₂ from industrial sources risks to immediately endanger the business case for these projects, at a time these are highly needed both to kickstart carbon capture investments in the cement industry, deliver immediate climate mitigation and decarbonise other sectors such as transport.

¹ Please see [map of worldwide carbon capture projects in the cement industry](#), Global Concrete and Cement Association.

² Estimates based on a combination of data from Commission document "A Clean Planet for all", COM(2018)773; Commission Communication on Sustainable Carbon Cycles, COM(2021)800 and the Staff Working Document 2021/451final and the IPCC Sixth Assessment Report on Mitigation Pathways, 2022.

³ Special Report on Carbon Capture, Utilisation and Storage, CCUS in clean energy transitions, IEA Energy Technology Perspectives 2020, p. 55

CO2 utilisation in synthetic fuels delivers significant emission reductions, and it is doubtful whether the demand for CO2 could be met by biogenic sources alone

- CEMBUREAU fully recognises that synthetic fuels using industrial CO2 are not a fully “*net zero solution*”, to the extent that the captured CO2 is re-emitted into the atmosphere when the fuel is used. However, synthetic fuels still make a decisive contribution to climate mitigation in the short to medium term, by considerably reducing the amount of CO2 emissions, allowing hard-to-abate transport sectors to decarbonise, and reducing reliance on fossil fuels. This contribution is recognised by the EU itself, with EU policies seeking to increase the share of recycled carbon fuels over time.
- The European Commission seems to justify the 2035 industrial CO2 phase-out date by arguing that ‘sustainable’ biogenic emissions and Direct Air Capture (DAC) would be available in quantities to produce synthetic fuels at that time horizon.
- Whilst CO2 used from DAC and biogenic sources will certainly have their place in the overall use applications, this development will take time and it is doubtful whether these will be available in sufficient quantities. Furthermore, DAC in particular would require highly significant quantities of zero carbon electricity to capture CO2 in a sustainable manner. For DAC, forecasts estimate between 154 and 227 million tonnes by 2050⁴ with no estimation of DAC/BECC availability for the trajectory 2030 to 2050 and only some reference to a 5 million tonnes target by 2030 in the Commission’s Sustainable Carbon Cycles Communication.
- As a consequence, carbon use from industrial sources will still be required during a transitional period which will extend to at least 2050.
- **On the basis of the above, a 2035 phase-out date for CO2 from industrial sources, more specifically from unavoidable process emissions, will not allow to meet the CO2 needs of society to achieve the goals set forth by the Paris Agreement. Conversely, it will have a major detrimental impact on existing and upcoming projects in the cement industry, and climate mitigation as a whole.**

CEMBUREAU, the European Cement Association is based in Brussels and is the representative organisation of the cement industry in Europe. Currently, its Full Members are 23 national cement industry associations and cement companies of the European Union plus Norway, Switzerland, Turkey and the UK. Croatia, Serbia and Slovakia are Associate Members of CEMBUREAU. Cooperation agreements have been concluded with Vassiliko Cement in Cyprus and UKRCEMENT in Ukraine.

Please click [here](#) to view the 2050 Carbon Neutrality Roadmap online, and click [here](#) to access CEMBUREAU’s map of ongoing innovation projects.

⁴ European Commission, “A Clean Planet for all”, COM(2018)773